



Union of Concerned Scientists

September 28, 2007

B. B. Blevins, Executive Officer  
Thom Kelly, Assistant Executive Officer  
Ray Tuvell, Fuel-Efficient Tire Program  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814

**Re: Comments Regarding the Fuel-Efficient Replacement Tires and Inflation Program for the Updated Macroeconomic Analysis of Climate Strategies presented in the March 2006 Climate Action Team Report, September 14, 2007.**

Dear Messrs. Blevins, Kelly and Tuvell:

On behalf of the Natural Resources Defense Council (NRDC) and the Union of Concerned Scientists (UCS), we reviewed the Fuel-Efficient Tire Program strategy presented in Attachment B of the Climate Action Team's Updated Macroeconomic Analysis of Climate Strategies, September 14, 2007. This letter summarizes our comments regarding the assessment of the potential for greenhouse gas reductions from an effective fuel-efficient tire program.

From the data currently available, we find that the potential greenhouse gas (GHG) reductions provided by the California Energy Commission (CEC) are dramatically underestimated. The most recent assessment of 0.12 MMTCO<sub>2</sub>e is less than one-tenth of the savings projected in the March 2006 Climate Action Team Report. This reduced savings estimate assumes that only a weak and voluntary program would be implemented, which is not consistent with state law. In addition, the estimate did not accurately account for the market potential for fuel-efficient replacement tires or the science that impacts a tire's efficiency.

The Energy Commission has failed to aggressively pursue a greenhouse gas reduction measure that is required by law and has potentially large benefits for consumers. Regulation-setting deadlines for the tire efficiency program required under California law have already passed. The CEC should make a renewed commitment to achieving GHG savings from the tire efficiency program through three immediate actions: (1) re-evaluate potential fuel and GHG savings from a tire efficiency program that fully implements the requirements of California law, (2) use this data to commence proceedings to establish

manufacturer tire efficiency reporting requirements and (3) set an expeditious timetable for establishing minimum efficiency standards.

*CEC has failed to meet statutory deadlines*

Under California law, the Energy Commission is obligated to implement a comprehensive tire efficiency program, which could transform the replacement tire market. California statute (Public Resources Code, Section 25770, enacted by AB 844, Nation, 2003), requires the CEC to adopt manufacturer tire efficiency reporting requirements by July 1, 2006 and to adopt minimum tire efficiency standards by July 1, 2007. The CEC has not met either of these statutory deadlines and has not provided to the public an alternate timetable for meeting its statutory responsibilities.

*By 2020, the Replacement Tire Market Can be Transformed to Higher Efficiency*

The CEC analysis assumes that market penetration of fuel-efficient replacement tires is driven solely by consumer education and reaches a maximum penetration of 15% of consumers needing replacement tires. This assumption ignores CEC's obligation to also adopt minimum efficiency standards. If implemented expeditiously, standards would shift the average efficiency of the market to at least match that of the original equipment (OE) market, as required by AB 844. Since vehicle owners replace their tires every three and a half to four years, full penetration into the market of the more efficient models should take no more than four years. Assuming the program is fully implemented by 2012, the replacement tire market should average or exceed the efficiency of the OE market well in advance of 2020. CEC fuel and greenhouse gas (GHG) savings estimates should reflect a full implementation of the California law.

*Tire Efficiency Improvements Provide Savings over the Life of the Tire*

NRDC and UCS disagree with CEC's representation of the necessary technology needed to improve tire efficiency because it ignores the potential for advancements in tire materials. CEC assumes that the fuel benefits achieved by a replacement tire is dependent on tread mass and that after the tread wears down from driving a certain number of miles, the fuel benefits of the efficient tire disappear. This assumption implies that tire efficiency is only a function of the mass of the tread. However, a study by the Transportation Research Board (TRB) of the National Academies of Science's National Research Council found that tire efficiency is also dependent on the chemical composition of the rubber compounds used in the tread material.<sup>1</sup> Preliminary results from CEC's study of the current tire market did not identify any significant correlation between rolling resistance and tread wear ratings. CEC should assume that efficient replacement tires are optimized for both efficiency and longevity.

California law requires that a replacement efficiency program "not adversely affect the average tire life of replacement tires." Therefore, to comply with the law, tire

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<sup>1</sup> Transportation Research Board, "Tires and Passenger Vehicle Fuel Economy: Informing Consumers, Improving Performance," Special Report 286, 2006.

manufacturers will have to sell tires that, on average, have improved efficiency without tread life degradation and will not likely be able to use reduced tread mass as a way of meeting efficiency requirements. When a change to rubber compound chemistry is used to achieve better efficiency without affecting tire wear rates, it is appropriate to assume that the efficiency benefit of the new material will continue as the tire wears down. Therefore, it is inappropriate for the CEC to assume that fuel saving benefits of efficient tires applies to only a certain number of miles or portion of a tire's life.

### *CEC Should Re-evaluate Fuel and GHG Savings Methodology*

The methodology used by the Energy Commission for calculating GHG savings from a tire efficiency program, as presented in Attachment B of Updated Macroeconomic Analysis, misrepresents the technological potential. Savings achieved from using fuel-efficient replacement tires should be calculated by comparing the fuel use and emissions by a fleet of vehicles using fuel-efficient replacement tires to a fleet of vehicles using current replacement tire technology. By 2020, it is expected that all vehicles requiring replacement tires (75%-80% of the light-duty market) would be fitted with tires from a replacement tire market that is more efficient on average than today. Furthermore, the savings potential of fuel-efficient replacement tires should exist over the life of the tires since the technology improvements must not degrade tire life.

Modifying the CEC calculation methodology to account for the proper replacement tire market penetration and savings over the life of the tire will result in much larger GHG reductions. Using an assumption of a 2% improvement in fuel economy from fuel efficient tires results in 2020 fuel savings of 269 million gallons and GHG savings of over 3.1 million metric tons of CO<sub>2</sub>e (MMTCO<sub>2</sub>e) when considering emissions across the full fuel cycle.<sup>2</sup>

### *Calculations of Savings from Tire Efficiency Are Conservative*

Tire efficiency innovations could provide larger efficiency benefits than those assumed by the CEC. TRB found that using more efficient replacement tires was a technically and economically feasible way to reduce light-duty fuel consumption by about 2% nationally based on a 10% reduction in average tire rolling resistance. CEC uses a conservative 2% fuel economy estimate from fuel-efficient tire technology, which results in a fuel consumption reduction of about 2%. The TRB report, however, put no upper boundary on how much fuel savings could be achieved by improvement in replacement tires. In fact,

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<sup>2</sup> Calculation assumes fleet of 30.4 million light-duty vehicles in 2020 and 75% of those vehicles use replacement tires. Fleet population is determined using the 2003 value of 25.65 million vehicles with 97% light-duty vehicles per IEPR 2005 and an annual population growth rate of 1.2% per Attachment B of the Updated Macroeconomic Analysis. GHG emission factor for gasoline is assumed to be 11.7 kgCO<sub>2</sub>e/gallon as per CEC Consultant Report, "Full Fuel Cycle Assessment: Well-to-Wheels Energy Inputs, Emissions and Water Impacts, State Plan To Increase The Use of Nonpetroleum Transportation Fuels, AB 1007 (Pavley) Alternative Transportation Fuels Plan Proceeding", CEC-600-2007-004-F, June 2007. Annual mileage is assumed to be 12,000 per TRB assumed national average. Average fuel economy is assumed to be 20 mpg as stated by CEC analysis; assuming a higher fleet fuel economy from current regulations would decrease savings but not to less than 2 MMTCO<sub>2</sub>e in 2020.

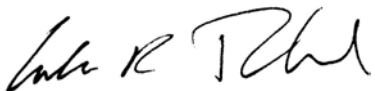
the report found that rolling resistance among tires in today's market with same size, traction, and speed ratings can vary by as much as 20%<sup>3</sup>, which could result in fuel economy benefits of 4%. With this in mind, it would be reasonable to CEC to potentially *increase* the GHG savings estimates from the original Climate Action Team report estimate.

California law also acknowledges the potential for new breakthroughs in tire efficiency. The replacement tire efficiency program required by AB 844 must be "designed to ensure that replacement tires sold in the state are at least as energy efficient, on average, as tires sold in the state as original equipment on new passenger cars and light-duty trucks." This is a minimum requirement, however; a comprehensive program that includes minimum efficiency requirements could introduce competition among manufacturers to capture consumer desire for greater efficiency and spur new innovations that would reduce GHG emissions beyond what is expected from today's known technology.

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We appreciate your consideration of these comments. For the reasons described above, NRDC and UCS request that CEC reevaluate the potential savings from a fully-implemented tire efficiency program and act immediately to implement the program as required by the law.

Sincerely,



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Vehicles Analyst, NRDC



Patricia Monahan  
Deputy Director for Clean Vehicles, UCS

Cc: James Boyd, CEC Vice Chair  
Susan Brown, CEC, Advisor to Commissioner Boyd  
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Michael Gibbs, Cal/EPA, Assistant Secretary for Climate Change  
Tom Cackette, CARB, Chief Deputy Executive Officer  
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<sup>3</sup> Ibid. TRB, page 74.